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ENTOMOLOGICAL NEWS

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Notes on the Zygaenid Genus Harrisina Packard, with Special Reference to Harrisina metallica Stretch

By ROBERT L. LANGSTON and OWEN J. SMITH, University of California Citrus Experiment Station, Riverside

Forty-five species are listed for the genus *Harrisina* Packard, by Bryk (1936). The type localities of all of these are in the Western Hemisphere, the total number being about equally divided north and south of Panama. The reports of Armitage (1946) and of Ebeling (1950) that *Harrisina brillians* B. & McD. occurs in Italy and was probably introduced into eastern United States from Europe appear to be in error. European literature fails to list the genus *Harrisina* from that continent, and Grandi * does not know of the occurrence of *H. brillians* in Italy. Observations on this species throughout its known range indicate that it is indigenous to the mountains of the Sonoran and Chihuahuan deserts, and that it has not spread far therefrom.

The species of the genus *Harrisina* listed for the United States (McDunnough 1939) may be divided into two groups: the eastern group, *H. americana* (Guér.) and its two forms *texana* Stretch and *australis* Stretch, occurring from Texas to Florida and New York; and the southwestern group, *H. metallica* Stretch, *H. coracina* (Clem.), *H. brillians* B. & McD., *H. lustrans* (Beut.) *H. cyanea* B. & McD., and *H. aversus* Hy. Edw., occurring from Texas westward and, in part, southward into Mexico.

* Correspondence, in 1952, with Professor Guido Grandi, Istituto di Entomologia della Universitá degli studi di Bologna, Bologna, Italy.

Harrisina brillians is much the most common of the southwestern group, its distribution apparently covering the range of all the other species and contacting the eastern group in Texas. With the exception of *H. cyanea,* which seems to have significant neurational differences, all the southwestern species are separated from *brillians* on more or less superficial characters of color and size. One of the apparently most distinct of this group is *H. metallica,* which has an orangish-red collar on the pronotum, as contrasted with the dark metallic blue of *brillians.*

The validity of specific status for *H. metallica* was first questioned by Cockerell (1897). He succeeded in obtaining eggs from a cross of a male of this "species" with a female of *H. coracina* and considered *metallica* to be a possible dimorphic form of *coracina.* It occurred to the authors that *metallica* might be a "red-collared" form of *brillians.* Data obtained from limited breeding experiments seem to confirm this opinion.

Results of Breeding Experiments

Among thousands of *H. brillians* moths that have emerged from larvae collected in California and Arizona, occasional *H. metallica* moths have appeared. Virgin moths of the two "species" were isolated, one pair to a cage. They were found to mate readily, producing viable eggs, and the offspring of each pair were reared separately.

Three different wild *H. brillians* females were crossed with *H. metallica* males and produced a combined total of 280 moths in the F_1 generation, all of which were *brillians.* A second generation was not obtained from this combination.

Two pairs of wild *H. brillians* males and *H. metallica* females were crossed and gave in the F_1 generation a total of 144 moths, again all *brillians.* A pair of these heterozygous *brillians* when mated produced 170 moths in an F_2 generation, of which 130 were *brillians* and 40 *metallica,* a ratio of 13 : 4 (approximately 3 : 1). The typical coloration of the two "species" was distinct with no evidence of integration. The sex ratios were not in significant variance from the normal 1 : 1 of *H. brillians.*

It thus appeared that the red collar (*metallica*) was a simple recessive Mendelian character. Unexpected results were obtained, however, from the progeny of a pair of wild *H. metallica*. Out of a total of 117 moths of an F_1 generation, 77 *metallica* and 40 *brillians* were obtained, a ratio of approximately 2:1. This indicates that either a multiple allele for red collar occurs, one dominant and one recessive to *brillians*, or that this experiment was accidentally contaminated with *H. brillians* larvae.

The genetics of the two "species" was not pursued beyond this point. Their extreme closeness, however, is obvious. Furthermore, no difference was observed between the larvae of *H. brillians* and *H. metallica*.

Population breeding of wild stock of *H. brillians* failed to produce a single *H. metallica* in 3,233 offspring. This indicates that a near-pure strain of *brillians* exists, at least in some areas. Moths emerging from field-collected larvae also showed *metallica* to be rare in most areas, in a ratio about 1:1500. In certain restricted locations the proportion was as high as 1:25, however, and field observations at Phoenix, Arizona, indicated that *H. metallica* might be predominant.

The wide range in size and color observed in *Harrisina brillians* moths is, in our opinion, sufficient to cover the characters used to separate most of the other species of *Harrisina* of the southwestern group. A comprehensive genetic study would undoubtedly clarify the confused taxonomy of the genus *Harrisina*.

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Arctic Alaskan Hymenoptera and Coleoptera

By Neal A. Weber, Swarthmore College,
Swarthmore, Pennsylvania

The following records of Hymenoptera and Coleoptera are in addition to those reported previously (Weber, 1950). They were taken mostly in 1950 during field work supported by the Office of Naval Research and the Arctic Institute of North America. All are from the Arctic slope of the Brooks Range north to the Arctic Ocean.[1] The Tenthredinidae were identified by Dr. R. B. Benson, the Ichneumonidae by Dr. J. F. Perkins, the Apidae by Dr. O. W. Richards, the Carabidae and several Staphylinidae by Dr. E. B. Britton and the Dytiscidae by Dr. J. Balfour-Browne, all through the courtesy of the British Museum (Natural History); other Coleoptera identifications are credited by name.

Order Hymenoptera

Tenthredinidae

Nematus (Pteronidea) reticulatus Holmgren: Pt. Barrow, July 12–14, 1950. Females taken on undisturbed tundra southeast of village in clear, breezy, 50° F. weather and at inlet seven miles south of village near Eskimo tents in overcast, windy, 40° F. weather. This species occurs on mountain tops in Scotland.

Nematus (Pteronidea) sp.: Ikakevik Lake.

Nematus (Pachynematus) clibrichellus Cameron (= *pubescens* Marlatt): Pt. Barrow, July 12–15, 1950. Males and females taken in tundra 5–8 miles south of village in breezy to windy, overcast, 40° F. weather and again under sunnier but cool conditions. A species occurring also on mountain tops in Scotland.

Amauronematus sp.: Noluk Lake.

[1] The data for Noluk Lake are latitude 68° 47′ N., longitude 160° 0′ W., July 6–7, 1950, elevation 2200–2800 feet above sea level; data for Ikakevik Lake are: latitude 68° 30′ N., longitude 157° 08′ W., July 6, 1950, elevation 2000 feet; data for Oumalik: latitude 69° 59′ N., longitude 156° 0′ W., July 15, 1949.

Ichneumonidae

Mesoleius sp. A: Pt. Barrow, July 12, 40° F., sky overcast, windy, near Eskimo tent and July 15, 1950 on tundra 5–8 miles back from coast.

Mesoleius sp. B: Noluk Lake.

Mesoleius (Spudaeus Thoms) sp. A: Noluk Lake.

Mesoleius (Spudaeus Thoms) sp. B: Noluk Lake.

Syndipnus sp.: Noluk Lake.

Helictes sp.: Umiat, July 27, 1950, on Colville river bottom. A genus parasitic on Diptera.

Orthocentrini—?**Neurateles** sp.—Alaska: Umiat, July 25, 1950, on the Colville river bottom (D.T.). A genus parasitic on Diptera as was *Atractodes* and *Stenomacrus* of Weber, 1950.

According to Dr. Perkins the *Mesoleius* and *Syndipnus* species were probably parasitic on Tenthredinidae larvae as was the *Aptesis* of Weber, 1950.

Formicidae

Formica fusca L.—Under the name of *Formica rubra* what is probably this ant was recorded by Parry, 1826, in the account of his third voyage to Arctic America as follows: "Abundant at the Whale-fish Islands; it was also found, on the preceding voyage, on several parts of the Melville Peninsula." As stated in Weber, 1950, it will probably be found in Arctic Alaska and has already been taken at the mouth of the Mackenzie River in Canada. The record of *Myrmica rubra* (?) (*loc. cit.*) should be deleted.

Vespidae

Vespula (Dolichovespula) norwegica albida (Sladen). Identified under this name in Weber, 1949, p. 128, the species was inadvertently referred to under the generic name *Vespa* in 1950. It has since been identified by Dr. Richards as *Dolichovespula norwegica marginata,* the latter a preoccupied name, from specimens from Umiat, July 25, 1950. Also on this day here, four species of *Bombus* were collected. The reference to this wasp (Weber, 1950, p. 189) having a nest with several cells containing honey erroneously implied that the wasps produced honey. Only *Bombus* in this area could have produced the honey, if honey it was. The nest was brought to me in a partially crushed condition by Eskimos and, while a typical wasp nest

of paper cells, it did have several cells containing a liquid. Unfortunately it was not retained and the honey diagnosis had best be discarded.

Apidae

Bombus alboanalis Franklin: Umiat, July 24, 1950. Taken on the crest of the Colville valley several hundred feet above the river at a temperature of 70° F.

Bombus bifarius Cress. var. *vancouverensis* Cress.: Umiat, July 25, 1950. Bumblebees of four species (including also *sylvicola, moderatus* and *kirbyellus*) were numerous in the lush vegetation about the ponds on the Colville valley floor.

Bombus kirbyellus (Curtis)—Alaska: Umiat, July 25–27, 1950. Ikakevik Lake; Noluk Lake. Considered by Dr. Richards a subspecies of *balteatus* Dahlb. See *vancouverensis.* This large *Bombus,* which appeared to be a variety with black tail and tergites 3–6 black haired (Richards), was captured as it was entering a *Citellus parryi* burrow at 2,500 feet elevation. At Ikakevik Lake the species occurred on a meadow near the lake covered with flowers at this time (dandelions, lupines, Stellaria, etc.).

Bombus moderatus Cress.: Umiat, July 25, 1950. See *vancouverensis.*

Bombus strenuus Cress.: Umiat, July 27, 1950.

Bombus sylvicola Kirby: Umiat, July 24–25, 1951. See *vancouverensis.* Taken also at Umiat on the crest of the valley several hundred feet above the valley floor at a temperature of 70° F.

Order Coleoptera

Carabidae

Nebria nivalis Paykull: Ikakevik Lake. This carabid was taken at noon of a sunny day at the shore of this small, hitherto unnamed lake near Ikakevik Mountain.

The species is known from the high mountains of Scotland and from Sweden, Finland and North Russia. Lindroth in his monograph of Fennoscandian Carabidae (1949) has much to say about this unusually interesting species. "Die einzige ausschliesslich in der *Regio Alpina* heimische Art ist *Nebria nivalis*" (p. 448) and in experiments (p. 465) it is shown to have the greatest cold tolerance of any carabid tested. He doubts, however, that my specimen is this species.

Pterostichus pinquedineum Esch. Noluk Lake. From summit of 2,800 foot mountain (600 feet above lake) among low tundra vegetation of dryish type.

Dytiscidae

Agabus sp. not in Brit. Mus.: Pt. Barrow, July 3, 1950.

Colymbetes dolabratus Payk.: Umiat, July 5, 1950, in pond on Colville valley floor.

Illybius sp. not in Brit. Mus.: Umiat, July 6, 1950, in pond on Colville valley floor.

Tlybius angustior of Weber, 1950 should be *Illybius angustior*.

Silphidae

Thanatophilus lapponica Hbst. (det. Arnett). Larvae were taken as late as August 30 at Anaktuvuk at a temperature of 30° F., snow having fallen in the night and morning. A large black larva was here taken, with many whitish mites attached to the venter, which did not seem to be hibernating although soft and pliable. Rather it appeared to be moribund since by the next day it was clearly dead. The habitat of this species and *trituberculata* appears to be similar. Also, Noluk Lake, from carcass of young female caribou dying several days earlier.

Staphylinidae

Arpedium n. sp.?: Ikakevik Lake, near shore.

Atanygnathus *sp.* (det. Blackwelder): Oumalik, from debris at base of *Salix glauca* var. *acutifolia* (Hook.) (det. Ball).

Micralymna sp. (det. Blackwelder): Pt. Barrow, July 14, 1949, from grasses, sedges, lichens, etc., much chewed by lemmings.

Tachinus n. sp.?: Noluk Lake.

Aleocharinae

Genus ? (det. Blackwelder): Anaktuvuk Pass, July 9, 1949, from slight rise or nunatak in middle of valley floor in dryish debris.

Chrysomelidae

Chrysolina n. sp. (det. H. S. Barber): Anaktuvuk Pass, August 28, 1948. Unfortunately Mr. Barber died before this was described.

Chrysomela subsulcata Mann (det. Bryan): Noluk Lake. Several specimens of variable size. The Pt. Barrow specimens of Weber, 1950, were also variable in size and iridescence. They were only found by patient searching July 3 and 4 while a cold wind blew from the polar ice. The insects moved sluggishly or remained immobile amongst the low, dryish tundra vegetation consisting mostly of lichens, short sedges and grasses. Their bronze elytra reflected sunlight or they would have been particularly hard to see in the vari-colored carpet of vegetation.

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A Change of Names in the Cerambycidae, with other Notes

By LAWRENCE S. DILLON and ELIZABETH S. DILLON
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College Station, Texas

As *Lamia spinosa* Say (1827) is a primary homonym of *Lamia spinosa* Drury (1773), it is essential that a new name be found for this common species of the genus *Dectes*. Since both *D. brevis* Casey and *D. texanus* LeConte are valid species, no synonyms are available for use. Hence the authors propose that the form in question be known as **Dectes sayi** Dillon and Dillon, nom. nov.

While the authors were studying over some Indo-Australian longhorns, it became apparent that the two specimens on which the description of *Mengelotes ambiguus* D. and D. had been based were mislabelled as coming from Mexico. *Mengelotes* D. and D. is a synonym of *Diochares*, and *ambiguus* is identical to *D. ambigenus* Chevrolat from the Philippine Islands.

Saperda vestita Say (1827), now placed in the genus *Eupogonius*, is a primary homonym of *Saperda vestita* Say (1824), and must be renamed, as LeConte suggested more than one hundred years ago (see Journ. Acad. Nat. Sci. Philadelphia

(2) II, 1852, p. 159). For the present the species may be called *Eupogonius pauper* LeConte, which name is currently listed as a synonym of the form under discussion. However, there appears to be considerable evidence supporting *E. pauper* as valid in its own right, in which case a new name will have to be applied here. Other names, according to Knull (Ohio Biol. Surv. Bull. xxxix, 1946, p. 264), that might be available here are *E. fulvovestitus* Schaef. and *E. fraxini* Knull, the ultimate solution depending on a revisional study of the genus.

Dr. Carl Börner (1880–1953)

Because he was a figure of world-wide importance, it is fitting that a brief notice be published in an American entomological journal of the death of Dr. Carl Börner, it being assumed that a definitive account of his life and work will be published in Germany.

Dr. Börner was born in Bremen, May 28, 1880, and died June 14, 1953, in Naumburg/Saale (Russian Zone), Germany. During most of his life he was director of the Imperial Biological Institution's stations for research on the grape Phylloxera, first at Villers l'Orme-Metz, and later at the new center that he established at Naumburg. He came to recognize a number of "biotypes" or races of Phylloxera, grew and hybridized many varieties of grapes, studied the intricate problems of host-parasite relationship and the inheritance of resistance and of immunity. Using the American species, *Vitis cinerea,* he finally developed varieties immune to all nine biological races of Phylloxera.

Older entomologists will recall Dr. Börner's monumental work on the Chermes, published in 1908, and his subsequent papers on this group, now known as Adelgidae; they will recall also his many contributions on the grape Phylloxera (Die Reblaus), a species that he studied and published on over a period of forty years. Aphid workers will, of course, remember him for his many fine contributions in their particular field, that is, if they happen to have access to his papers, some of which were privately published and appear to have had a limited circulation. They will perhaps long remember him, and cause him unrest,

for the paper in which he described seventy-five new species on four pages of text. It is likely that Dr. Börner will be best remembered for his contribution of a new system of generic classification in the Aphidae, for the numerous genera that he described in this group, and for over 200 new species that he described. All will be pleased that he lived to see his "Europae centralis Aphides" (Die Blattläuse Mitteleuropas), a work of 484 pages, in print.

Few Americans will be aware of the fact that Dr. Börner also published in the field of botany. In 1912, there appeared his "Volksflora Deutschlands," much in demand at the time; in 1923 he published his "Tokontologie," in which he attempted to establish a theoretical basis for a natural system, particularly of the plant kingdom, based on the types of alternation of generations and reproductive phenomena rather than on morphology.

Nor was Dr. Börner's interest limited to the fields just enumerated. He published on insect anatomy and morphology, insect phylogeny, on the Collembola and Lepidoptera. Few, if any, will be aware of the fact that he also wrote poetry; only his family and intimate friends will know of his interest in music.

The writer never met Dr. Börner, and much to his regret only started to correspond with him in 1948, although attempts were made to do so earlier. He found him very generous and helpful.

F. C. Hottes,
Grand Junction, Colorado

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

More about Bees' Dances for Directing the Swarm

In 1951, Martin Lindauer [1] showed for the first time that bees use their remarkable "language" [2] not only for giving the

[1] See Ent. News 63: 100-02, April, 1952.
[2] See Ent. News 58: 152-54, June, 1947.

location of nectar but also for directing a swarm to a new nesting site or future home. This year,[3] after another season's work, using more controlled conditions (artificially made up swarms placed at convenient eye-level, and a locale where there were no natural nesting sites available), Lindauer has been able to demonstrate that bees can discriminate between more and less desirable prospective homes and that even when several sites are discovered they are able to select the best of these. He has learned how the bees attain agreement as regards the best site, how the cluster is finally broken up, and how the flight to the new home is directed and completed. Some of this work will be described here.

In the first experiment, two empty possible nesting sites were set up: "A," a light box hive 10 meters distant under a tree and covered with some brush, and "B," a ruggedly constructed hive 75 m. distant and exposed on a tree stump. Both were soon discovered by scouts from the swarm. Within 4 hours, 37 such scouts were dancing on the swarm to promote the more sheltered site "A," and making repeated return visits to the site; for "B" there were only 3 dancers. Hive "B" was now placed on the ground beside the stump and dry brush was heaped about it to thoroughly ensconce it. The following day the number of bees frequenting "B" and dancing for it rapidly increased to 101, while site "A" gained only a few new adherents. On the third day there were again more new dancers for "B" while the dancers for "A" gradually gave up dancing entirely and made only infrequent visits back to their site. Four of the "A" dancers even became converted and danced for site "B." At 10:55 on this day, the decision having fallen to "B," the cluster broke up and flew to take possesison of the new home.

When given the choice between two straw skeps, one of which was perfumed with a few drops of melissa oil (thought by beekeepers to be attractive), a swarm showed preference for the odorless one. Exchanging the locations of the two skeps, the bees changed their dance to the new location of the odorless one.

[3] LINDAUER, M. 1953. Bienentänze in der Schwarmtraube (II). *Die Naturwissenschaften*, 40: 379–85.

As between this skep and a wooden hive the bees preferred the hive.

In one experiment with two empty hives, scout bees from a swarm were giving about equal attention to both (14 and 16 dancers respectively) when suddenly a single bee was seen to dance very vigorously for still a third location. Soon others were dancing in this very lively and excited fashion. Searching in the direction and at the distance indicated by the dance, Lindauer soon found a small hole in the ground, 3 mm. across, with about 50 bees excitedly going in and out. Within another hour there were many more dancers and the swarm reached its decision, broke up and flew to take possession of what proved to be a dry cavity, ½ m. underground, 20 cm. high, 30 cm. wide, 50 cm. deep, in a quiet sheltered corner of the woods, an ideal home indeed.

In the above case, it was the liveliness and vigor of the dance that encouraged more and more new bees to visit the underground site and that at the same time discouraged the dancers for the other site. Apparently the bees do not compare the several sites but are able to judge a site absolutely. A 1st Class site will evoke very brisk dances, a 2nd Class site a less vigorous response, and so on. Dancers for a lower grade site when meeting these lively dancers of a 1st Class site at first pay little heed but after several such encounters on the surface of the swarm they gradually give up their own dancing and their visits to their site also become less frequent. In one instance, after a fourth encounter, one bee was seen later to have adopted the new style of dance, i.e., to have become converted. When only low grade sites are available a decision is reached slowly and so there is more time for the discovery of a better site.

A decision and a departure of the swarm were found to be immanent when about 100 bees were frequenting a prospective home. By setting up two like empty hives at equal distances (and by making various changes during the course of the experiment so that the two sites remained in fact equally desirable to the bees) it was possible to have two groups of dancers in about equal strength. When each group had been built up to a hun-

dred, each group, under the impression that a decision in favor of its site had been arrived at, set about to break up the cluster and to lead it off. Once in the air, however, the swarm got nowhere, and had to re-form a cluster.

The liveliness of the dances depends upon the qualities of the site discovered, but it depends also upon a peculiar behavior of the bees visiting there. At the site, a bee may suddenly burst into a group of bees standing about, or even circle about a single bee, and running with extremely hurried, nervous, zig-zag strides will ram its head into one or another bee, nudging it sharply, while carrying out vibratory shaking movements in the vertical. Most striking of all is the loud buzzing of the wings at intervals during these "Schwirrläufe," as Lindauer calls these performances.

Increased dancing in the swarm brings about more of this buzzing-running at the site, the buzzings at the site increase the vigor of the dances, and so on in an accelerating cycle that quickly reaches an optimum pitch of excitement and that leads to the departure of the swarm. The actual breaking up of the cluster is brought about by such buzzings performed on the swarm by the bees from the site. At such a time the bees at the site have practically all returned to the cluster and begin their excited buzzings, spreading over the surface of the swarm and boring into the cluster which begins to loosen up. As the excitement grows, 5 or ten bees fly off the cluster, then a few dozen more, then hundreds, and then within a few seconds the entire swarm is in the air and producing the familiar low, loud humming tone.

R. G. SCHMIEDER

Brachymyrmex depilis subsp. flavescens Grundmann a Synonym of Brachymyrmex depilis Emery (Hymenoptera: Formicidae) [1]

By A. C. Cole, The University of Tennessee, Knoxville

Grundmann (1952)[2] described *Brachymyrmex depilis flavescens* from a series of 22 workers collected in Big Cottonwood Canyon near Salt Lake City, Utah. Dr. Grundmann has generously supplied me with a series of his cotypes. I have examined these specimens carefully and have compared them with series of the typical species from both the eastern and the western United States including a series which I had collected in 1932 near Twin Falls, Idaho in a similar hibitat. From these studies I have reached the conclusion that *flavescens* is not significantly different from the typical *depilis* and that its structural characteristics fall well within what can be expected as normal variation of populations of *depilis*. Furthermore there is apparently nothing significant about the station of *flavescens* to segregate *flavescens* as a subspecies.

It seems very likely to me that Dr. Grundmann collected a series of callow workers which might even represent an incipient colony. If this should be true, Dr. Graundmann is not the only myrmecologist who has made such an error. The workers are smaller than those of *depilis* and their color is paler. Furthermore the integument is shriveled considerably.

I propose therefore that *B. depilis flavescens* Grundmann be relegated to the synonymy of *B. depilis* Emery.

[1] Contribution No. 78, Department of Zoology and Entomology, The University of Tennessee.

[2] Grundmann, A. W. 1952. A new Brachymyrmex from northern Utah (Hymenoptera: Formicidae). Jour. Kansas Ent. Soc. 25: 117.

Current Entomological Literature

Compiled by VENIA T. PHILLIPS, Librarian

Academy of Natural Sciences of Philadelphia

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania pertaining to entomology, including all arthropods except Crustacea. Coverage will be world-wide as regards major contributions to systematics as well as for all papers on morphology, physiology, embryology, etc. In addition, for species from the Americas and the Pacific (Nearctic, Neotropical and Polynesian regions) all minor contributions to taxonomy, distribution, etc., will also be recorded.

This list gives references of the year 1953 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

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